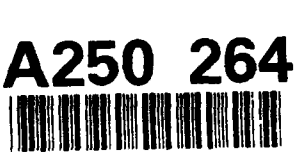



NAVAL WAR COLLEGE
Newport, RI

# INCREASING OPERATIONAL MOBILITY

by

Donald T. Lindboe
Major United States Marine Corps

A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirement of the Operations Department.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.





Signature: _____

19 June 1992



SECURITY CLASSIFICATION OF THIS PAGE

# REPORT DOCUMENTATION PAGE

| | |
|---|---|
| 1a REPORT SECURITY CLASSIFICATION<br>UNCLASSIFIED | 1b RESTRICTIVE MARKINGS |
| 2a SECURITY CLASSIFICATION AUTHORITY | 3 DISTRIBUTION / AVAILABILITY OF REPORT<br>DISTRIBUTION STATEMENT A: Approved for Public Release; distribution is unlimited. |
| 2b DECLASSIFICATION / DOWNGRADING SCHEDULE | |
| 4 PERFORMING ORGANIZATION REPORT NUMBER(S) | 5 MONITORING ORGANIZATION REPORT NUMBER(S) |
| 6a NAME OF PERFORMING ORGANIZATION<br>OPERATIONS DEPARTMENT<br>6b OFFICE SYMBOL (If applicable)<br>C | 7a NAME OF MONITORING ORGANIZATION |
| 6c ADDRESS (City, State, and ZIP Code)<br>NAVAL WAR COLLEGE<br>NEWPORT, R.I. 02841 | 7b ADDRESS (City, State, and ZIP Code) |
| 8a NAME OF FUNDING / SPONSORING ORGANIZATION<br>8b OFFICE SYMBOL (If applicable) | 9 PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER |
| 8c ADDRESS (City, State, and ZIP Code) | 10 SOURCE OF FUNDING NUMBERS<br>PROGRAM ELEMENT NO. / PROJECT NO. / TASK NO / WORK UNIT ACCESSION NO. |

11 TITLE (Include Security Classification)

INCREASING OPERATIONAL MOBILITY (UNCLASSIFIED)

12 PERSONAL AUTHOR(S)
DONALD T. LINDBOE, MAJOR, USMC

| 13a TYPE OF REPORT | 13b TIME COVERED | 14 DATE OF REPORT (Year, Month, Day) | 15 PAGE COUNT |
|---|---|---|---|
| FINAL | FROM _____ TO _____ | 920223 | 24 |

16 SUPPLEMENTARY NOTATION A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Operations. The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

| 17 COSATI CODES | | | 18 SUBJECT TERMS (Continue on reverse if necessary and identify by block number) |
|---|---|---|---|
| FIELD | GROUP | SUB-GROUP | OPERATIONAL MOBILITY<br>OPERATIONAL READINESS |
| | | | |
| | | | |

19 ABSTRACT (Continue on reverse if necessary and identify by block number)

This study examines the four major methods currently used to achieve military responsiveness, (forward-basing, airlift, sealift, and prepositioning), and evaluates their effectiveness. Afloat prepositioning is determined to offer the most cost-effective, flexible and responsive method for increasing current operational mobility. The study also suggests that afloat prepositioning can be increased with existing funds and assets. It is recommended that POMCUS material be prepositioned on fast sealift ships, the Army's PREPO ships, and/or Ready Reserve Force ships. The study concludes that this reallocation of assets would create a new capability for the operational commander: a highly mobile, heavy-mechanized, division-sized force.

| 20 DISTRIBUTION / AVAILABILITY OF ABSTRACT | 21 ABSTRACT SECURITY CLASSIFICATION | |
|---|---|---|
| ☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT ☐ DTIC USERS | UNCLASSIFIED | |
| 22a NAME OF RESPONSIBLE INDIVIDUAL<br>CHAIRMAN, OPERATIONS DEPARTMENT | 22b TELEPHONE (Include Area Code)<br>841-3414 | 22c OFFICE SYMBOL<br>C |

DD FORM 1473, 84 MAR 83 APR edition may be used until exhausted
All other editions are obsolete

SECURITY CLASSIFICATION OF THIS PAGE

★U.S. Government Printing Office 1988—630-812

**Abstract of**

**INCREASING OPERATIONAL MOBILITY**

Operational mobility is currently one of the most significant limiting factors in the U.S. military's ability to meet contingencies. This paper examines the four major methods currently used to achieve military responsiveness, and evaluates their effectiveness. They are forward-basing of troops, airlift, sealift and prepositioning of equipment. These methods are in large part complementary rather than mutually exclusive. However, within today's realities of a smaller military force and a reduced military budget, a .oat prepositioning is determined to offer the most cost-effective, flexible and responsive method for increasing current operational mobility. The study also suggests that afloat prepositioning can be increased with existing assets and funds. It is recommended that one division set of POMCUS material be prepositioned on a combination of fast sealift ships, the Army's PREPO ships, and/or Ready Reserve Force ships. The study concludes that this reallocation of assets would create a new capability for the operational commander: a highly mobile, heavy-mechanized, division-sized force. Implementation of the recommendation would increase operational mobility and provide a strategic asset as well.

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## CHAPTER I

## INTRODUCTION

***Thesis: Increasing the Afloat Prepositioned Force (APF) program is feasible, and is the most effective method available to increase the operational CINC's responsiveness and flexibility.***

"No matter how good the armed forces are, they are of no value if they cannot be in the right place at the right time and in the right numbers to get results."[1] This quotation aptly sums up the current dilemma confronting America's military leadership. The following excerpts from President Bush's September, 1990 speech "United States Defenses: Reshaping Our Forces" provide further insight in the challenge of military responsiveness:

> The world is now changing...we are entering a new era: the defense strategy and military structure...can- and must-be different...the size of our forces will increasingly be shaped by the needs of regional contingencies...by 1995 our security needs can be met by an active force 25 percent smaller than today's...maintaining a forward presence will remain an indispensable element of our strategy...threats...can arise suddenly, unpredictably and from unexpected quarters...we must focus on readiness and rapid response...our ability to defend our interests will depend on our speed and our agility and we will need forces that give us a global reach...we are separated from many of our important allies and interests by thousands of miles of water...a new emphasis on flexibility and versatility must guide our efforts...The challenges we face are fiscal, as well as military.[2]

Although the United States has, and will continue to have, the military might to successfully defend her national interests against any potential adversary, the U.S. military's ability to

place forces when and where they are needed is problematic. This is not just a strategic predicament. Operational Commander's-in-Chief (CINC's) are faced with the same issue. The purpose of this paper is to examine the current methods of providing operational responsiveness, and to evaluate the thesis statement based on this examination.

## CHAPTER II

## METHODS OF OPERATIONAL READINESS

Operational CINC's currently have the following methods to enable them to respond to contingencies:

- Forward-based forces
- Airlift
- Sealift
- Pre-positioned equipment

In order to evaluate the effectiveness of afloat pre-positioning, it is necessary to define the alternatives and evaluate each one. This chapter will examine the current status of each method with respect available assets, capabilities and limitations.

## FORWARD-BASED FORCES

Forward-basing of forces, the permanent staging of units away from the continental United States (CONUS), is utilized both on land and afloat. Army forces currently forward-based on land in Europe and Marine Expeditionary Units (MEU's) afloat are examples of forward-basing of forces.

Forward-basing of units is highly effective in theory, but impractical in depth. The Strategic Studies Institute at the U.S. Army War College, noted that regarding land based forces, "Forward deployment provides maximum deterrent value and warfighting capability..."[1] This statement is applicable to sea-based forces as well. However, the costs associated with large scale forward-basing, coupled with the undesirability of stationing large numbers of troops overseas for long periods, make this option of limited utility. The current reductions in both the defense budget and in the size of the U.S. military force will effectively restrict the U.S. military's ability to use the concept of forward-based units on a large scale as a method to achieve operational or strategic readiness.

## AIRLIFT

Airlift, the movement of units (personnel and equipment) by aircraft, makes a critical contribution to operational readiness, but has two inherent limitations. While strategic airlift is "fast and flexible and can quickly transport high-priority cargo and

passengers anywhere in the world,"[2] the lift capacity is limited. Due to these lift limitations,

> airlifted forces will normally consist of light armor and infantry, with some limited airpower...(which)... represent little more than the resolution to use military force. Large numbers of heavier reinforcements must be moved by other means; for example the 60-ton U.S. Abrams (tank) can only be moved one at a time."[3]

Additionally, the cost of the strategic aircraft is very expensive to both acquire and maintain. This high cost, and the limited lift capability of this option, make airlift unrealistic as a method of improving current operational mobility.

SEALIFT

Sealift is currently utilized extensively for the movement of units (personnel and equipment) abroad. Ships used for this purpose fall into the following categories:[4]

- Military Sealift Command (MSC) controlled fleet.
- Fast Sealift Ships (FSS)
- Afloat Prepositioning Force (APF)
- National Defense Reserve Fleet (NDRF)
  - Ready Reserve Force (RRF)
  - Mothball Fleet
- Sealift Readiness Program (SRP)
- Effective U.S. Controlled (EUSC) Fleet
- Regional Programs (NATO pool, S. Korean ships)

The commander of MSC noted that, of the above listed sealift categories, "the Afloat Prepositioned Force, the fast sealift ships, and the RRF remain the only readily available sources of significant numbers of ships capable of carrying military unit equipment."[5] Since the primary focus of this paper is related to unit equipment carrying ability, only APF, FSS and NDRF will be reviewed. (APF will be discussed in the "Prepositioning" section.)

The Fast Sealift Ship (FSS) program consists of eight converted SL-7 class ships. They are capable of a sustained speed of 33 knots (endurance speed is 27 knots), and have roll-on, roll-off (RO/RO) and self-offload capabilities.[6] FSS ships have a mission of sealift for heavy Army units. During Operation Desert Shield, seven FSS ships (plus two RRF ships and one charted ship) were used to transport the Army's 24th Infantry Division (Mechanized) to Saudi Arabia.[7]

The National Defense Reserve Fleet (NDRF) is composed of the Ready Reserve Force (RRF) and what is commonly known as the "mothball" fleet. The RRF consists of 96 former commercial ships, 17 of which have been converted to RO/RO ships. These RRF RO/RO ships were used extensively in Operation Desert Shield/Storm. The "mothball" fleet has 225 older ships, some of which are of World War II vintage. The Maritime Administration has deemed a significant portion (up to a third) of the mothball fleet as militarily useless.[8]

The FSS and NDRF ships provide the heavy lift capability which airlift lacks. Vice Admiral Donovan, Commander of the Military Sealift Command, recently noted that,

> In war, the carriage of more than 95 percent of dry cargo and 99 percent of petroleum products needed to sustain forward deployed forces will be carried by ship; there is simply no other practical method to transport the vast quantities of supplies and equipment needed to support the U.S. strategy.[9]

One problem area with regards to sealift is current overall capacity. Sea Power magazine reported in 1990 that while sustainment shipping capacity (for resupply/reinforcement operations) is adequate, "the United States has a shortfall of surge shipping of some 20 percent of projected need."[10]

An additional potential problem with sealift is its responsiveness. Transporting military force over large ocean distances takes time. If a contingency develops with little warning, sealift may not be able to deliver the forces required in time to be at the critical place to effectively counter the threat at the onset of hostilities. The fall of the Shah of Iran and the Iraqi invasion of Kuwait are two examples of this deficiency. In the first case, the U.S. was not able to intervene at all, and in the second, it was relatively light airborne and prepositioned forces which were first on the scene.

## PREPOSITIONING

The concept of prepositioning involves the staging of material in deployed locations. The material can be prepositioned on land or at sea. Also, this equipment can be unit equipment, staged in sets for specific military units, or it can also be staged by commodity (ammunition, fuel) for general use. Land-based prepositioning is used by the Army in Europe and the Marine Corps in Norway. Afloat prepositioning is also used by both the Army and Marine Corps.

### Prepositioning Ashore

The Army land-based prepositioning program is known as the Prepositioning of Material Configured to Unit Sets (POMCUS) program. The Marine Corps' prepositioning program in Norway follows procedures similar to those of the POMCUS program. Prepositioning was developed as an alternative to forward-basing of troops. Under this concept, heavy items of equipment, such as tanks and trucks, are stored in forward locations, and maintained by a small number of U.S. military personnel. In the event of a contingency, personnel from CONUS are airlifted into the area to be "married-up" with the prepositioned equipment.[::] Upon reaching its peak, the POMCUS program stored 97 percent of the equipment requirements for six Army divisions.[::]

Land-based prepositioning has both significant advantages and disadvantages. It reduces the airlift and sea requirements of a

CONUS-based division. Responsiveness related to this concept can be outstanding, requiring only the time necessary for airlift of personnel and distribution of equipment. POMCUS requirements, however, include host-nation support, security of the storage area and an airfield for airlift of personnel from CONUS. Finally, land-based prepositioned material, is not, in and of itself, mobile. Even limited intra-theater movement would require personnel and assets (ships/aircraft) not organic to these types of programs.

Prepositioning Afloat

The prepositioning of material at sea is currently accomplished by the Afloat Prepositioning Forces (APF) program, which is under the purview of the MSC. The APF is comprised of two separate programs: Maritime Prepositioning Ships (MPS) and Prepositioning Ships (PREPO Ships).[13]

The 13 MPS RO/RO ships are organized into three MPS squadrons, each of which can support a Maritime Amphibious Brigade (MAB) deployment. The three MAB's and the three MPS squadrons, along with three Navy Support Elements (NSE), comprise the Maritime Prepositioning Force (MPF). The concept of operations, as defined in the Marine Corps' MPF Operational Handbook (OH) 7-6,

> consists of the use of equipment and supplies prepositioned aboard forward deployed Maritime Prepositioning Ships (MPS), and a Marine Amphibious Brigade (MAB) along with a Navy Support Element that are

> airlifted ...into an objective area to assemble with their equipment in preparation for operations ashore.[14]

Most of each MAB's equipment, along with 30 days of supplies, are loaded on MPS ships. Each MPS squadron is permanently deployed in strategic locations. Currently the three MPS squadrons are located in the eastern Atlantic, the western Pacific, and the Indian Ocean.[15]

The Marine Corps has recently refined the MPF concept by incorporating Deterrent Force Modules (DFM's) into the MPF scheme of employment.[16] There are four DFM modules:

- MEU(SOC) module: This DFM is composed of one MPS ship with equipment and 15 days of sustainment for a fly-in Marine Expeditionary Unit - Special Operations Capable (MEU/SOC).
- LIC MEB Module (with ARG): This DFM low-intensity-conflict (LIC) module consists of two MPS ships plus an Amphibious Ready Group (ARG). The ARG provides the capability of forcible entry, along with the ability to secure port and airfield facilities for the fly-in echelon of the MPF MEB.
- LIC MEB Module: Three MPS ships are used for this module. It has the capability to deploy to two locations simultaneously (two ships will support a LIC MEB, the

third will support a MEU). It has sustainment for 30 days. An ARG is not included in this module.

- o Heavy MEB Module: This is the traditional MPF MEB.

The source of this data, along with further details of each DFM, is contained in an excellent article by Lt. Col. David Brown, USMC (Ret.), entitled, "Call in the Marines," published in Amphibious Warfare Review, Summer, 1991.

The MPF concept provides excellent mobility and responsiveness, as demonstrated in Operation Desert Shield.[17] Its advantages include the ability to be en route within ten days, self-offload capability either at pierside or in-the-stream, and the ability to provide a medium-heavy combined-arms MEB. However, it requires a benign port and secure airfield, and the MPS ships lack a self-defense capability.[18]

The 12 PREPO ships are utilized to carry cargo for the U.S. Army, Air Force and Navy.[19] In contrast to MPS ships, PREPO ships' cargo is for general use. It is not tailored to specific units.[20] Of particular interest to this study is the current utilization of the four U.S. Army PREPO ships. One is a semi-submersible vessel loaded with water craft and material handling equipment for use at ports of debarkation.[21] The other three are prepositioned storage for two Army operational projects: (1) A hot weather clothing and equipment project, and (2) an intermediate staging facility project.[22] A 1990 U.S. Army audit of its PREPO ships found that,

"the hot weather clothing and equipment were not stored aboard the prepositioned ships, but some water support equipment was." A portion of the water support equipment was for use by follow-on forces, and the auditors recommended its removal from the PREPO ships. The audit also found that the Department of the Army had authorized CONUS storage of the staging facility. While the audit found that the management of the material stored aboard the PREPO ships was adequate, it concluded that "Third Army did not adequately review the operations projects (related to PREPO ships),...and Forces Command, the project proponent, did not provide adequate oversight."[13] These findings lead to the conclusion that although material accountability is satisfactory, the adequacy of the concept of operations for the PREPO ships is questionable.

# CHAPTER III

## COMPARISON

Each of the four methods of providing military responsiveness under discussion currently plays an important role in operational and strategic preparedness of U.S. military forces. They are not mutually exclusive, but instead are complementary. The limitations of one can often be compensated for by others. The purpose of this chapter is not to rate them against each other, but rather to analyze each with respect to their ability to increase the operational CINC's responsiveness, mobility and flexibility.

Two of the four methods of increasing responsiveness are clearly not realistic as methods to increase a CINC's current operational mobility. The forward-basing of troops provides the most effective method of responding to contingencies, but it is not very mobile, or cost effective. Budget constraints and the downsizing of the U.S. military force make increasing this option unrealistic. Airlift is highly responsive, but can only handle relatively light forces. The airlift option is also undesirable in terms of current budget restrictions.

Sealift possesses the heavy lift required to move military units, and is highly mobile. Its major limitation is speed. To illustrate this, studies have estimated that FSS ships, the most responsive sealift option, would take 25 days to deliver units to

Saudi Arabia.[2] FSS ships at the beginning of Operation Desert Shield took 20 days to deliver their cargo of Army equipment.[3] Other sealift assets would have taken even longer. Given sufficient warning prior to the onset of hostilities, sealift is adequate, as demonstrated during Operation Desert Shield. However, if Iraq had invaded Saudi Arabia immediately after Kuwait was invaded, sealift would not have been capable of putting forces into the area in time to blunt the Iraqi military effort.

Prepositioning of material increases responsiveness by having the equipment close to potential contingency areas. The airlift of personnel can be accomplished in days. Land-based prepositioning is however, not mobile, which reduces its flexibility. Host-nation support and security of the stored equipment can also be problems. Afloat prepositioning is mobile, both in an operational theater and strategically. Flexible response to accommodate a wide variety of contingencies can be developed with the use of the DFM concept. The cost of staging this equipment aboard ship, and the lack of a self-defense capability are two limitations of this method.

The table below provides a matrix comparision for each method of operational readiness. To summarize, airlift and forward-basing as current options for increasing operational responsiveness and flexibility are unrealistic primarily due to budget restrictions and U.S. military force reductions. This leaves the sealift and prepositioning methods. Sealift can accommodate the heavy lift required for military forces,and is highly mobile, but has

limitations on responsiveness as well as deficiencies in surge capability. Land-based prepositioning is the most effective method short of forward-based troops, but is not mobile operationally. Also, there are potential problems related to host-nation support (political and financial), and its security can be compromised by terrorist activity or invasion. Afloat prepositioning is mobile, flexible, highly responsive, and has heavy lift capability. Its vulnerability is offset to some degree by the security inherent in its mobility. Given the current realities, afloat prepositioning appears to offer the most advantages and least limitations of the methods available.

**TABLE 1**

**OPERATIONAL READINESS COMPARISON**

| | FORWARD-BASING | AIRLIFT | SEALIFT | PREPOSITIONING | |
|---|---|---|---|---|---|
| | | | | ASHORE | AFLOAT |
| Responsiveness | High | High | Moderate | High | Moderate to High |
| Mobility | Low | High | High | Low | High |
| Flexibility | Low | Moderate | High | Low | High |
| Feasibility (Cost/ Personnel) | Low | Low | Low | Moderate | Moderate |

## CHAPTER IV

## RECOMMENDATION

The question now arises: Is it necessary and feasible to expand the APF program?

During August, 1990, in response to the Iraqi invasion of Kuwait, the United States airbornes forces were on the scene within days, followed by MPF forces, who began arriving a week later.[1] Though responsive, the airborne forces could not have stopped an Iraqi surge into Saudi Arabia, and the relatively small MPF forces' ability to blunt any such move by the larger Iraqi army would have been problematic. The United States would not have had the means to apply Clausewitz's dictum of applying overwhelming force at the critical time and place. A mechanized Army division with an MPF-type capability could have filled a critical void at that time. Future contingencies may well mirror Operation Desert Shield. Potential adversaries are increasingly well-armed and can field mechanized heavy forces. In short, a need exists.

Prepositioning Army unit equipment afloat is not a new idea. During the 1960's plans to do just that were begun, but the Vietnam war siphoned off these assets and the program was disbanded.[2] To reinstitute this type of program would require 10 to 12 ships for one army division's equipment, an its sustainment supplies.[3] Also required are the funds and personnel to maintain the ships and equipment.

The ships required could be made available in several ways. The first alternative is utilizing the fleet of FSS ships. The FSS program's raison d'etre is rapid lift of heavy Army units.[4] Why not increase responsiveness by prepositioning Army unit material on these ships (with a sustainment package including ammunition, fuel and other supplies)? The eight FSS ships could be augmented by the Army's three PREPO ships. Past studies have concluded that historically the Army's afloat prepositioning program has suffered from a lack of a concept of operations.[5] The recent Army audit of its PREPO ships supports this analysis. Another alternative would be to utilize some of the 17 RRF ships which have been converted to a RO/RO configuration. The FSS, PREPO and RRF ships referred to were all used for Operation Desert Shield/Storm and performed satisfactorily.[6]

The second issue is unit equipment. There are currently multiple sets of Army division equipment stored in Europe under the POMCUS program. With the dissolution of the Warsaw Pact and resultant reduced threat in Europe, one division's equipment could easily be transferred to an afloat prepositioning program.

The third issue is funds and maintenance personnel. Maintaining ships and the equipment stored on them will cost money. Both the ships and the POMCUS equipment already have funds budgeted for them and are being maintained. The FSS, PREPO and RRF ships all currently maintained in a reduced operating status. POMCUS

equipment maintained by the Army in Europe currently has a maintenance budget of $121 million per year.[7]

Afloat prepositioning of Army units may raise the question of whether or not this is tantamount to proposing an expeditionary mission for the Army, which would be a duplication of one of the U.S. Marine Corps' mission. The answer is a resounding "NO"! The fact is that, "Marine Corps and Army forces are not so much in competition for an expeditionary "mission" as they are complementary contributors of forces for an expeditionary *capability*."[8] If given an expeditionary mission, the Army would need equipment not now organic to it, most notably for an expeditionary air arm (Harriers, expeditionary airfields, etc.) and for an amphibious capability. In fact, the lack of a requirement for an Army expeditionary mission augments the argument that an Army afloat prepositioning program is feasible. Not needing expeditionary equipment (and the funds to procure and maintain them), the Army should be able to preposition units afloat with less cargo space and less funding requirements than their Marine Corps counterparts.

## CONCLUSION

Operational mobility is currently the most significant potential problem in the U.S. military's ability to accomplish power projection. This was demonstrated at the onset of Operation Desert Shield/Storm, when the CINC's ability to rapidly buildup heavy combat power was limited. This limitation could have had an critically adverse effect on the operation. Afloat prepositioning provides the most effective method currently available to rapidly place heavy mechanized forces into the area of operations. This would greatly increase the operational commander's responsiveness and flexibility. It is feasible to put together a mechanized Army division afloat prepositioning program with existing assets and funding. It will not only increase an operational commander's options, it will provide a valuable strategic asset as well.

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